



thinknature

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**Innovative techniques for restoring
and reclaiming rural land for urban
co-benefits**



UNIVERSITY OF LEEDS



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This session will:

1. Introduce 2 case study examples of NBS case studies of restoring and reclaiming rural land for urban co-benefits [~30 mins]
2. Guide participants through a structured process of [~1 hour]:
 - a) Identifying other innovative NBS techniques for restoring and reclaiming rural land (including for urban co-benefits)
 - b) Assessing their **potential for impact** (i.e. potential for being up-scaled and providing co-benefits to wide number of beneficiaries) and **readiness for deployment** (Technology Readiness Level, TRL)
 - c) Exploring the needs for demonstration projects and Research and Innovation (R&I) opportunities to accelerate uptake
 - d) Understanding barriers to mainstreaming (particularly policy related barriers)

Example NBS techniques

Water flow regulation

- Restore wetlands in areas of groundwater recharge
- Reconnect rivers with floodplains to enhance natural water storage
- Re-vegetation of riverbanks
- Plant trees / hedges / perennial grass strips to intercept surface run-off

Climate regulation (carbon sequestration/ climate change mitigation)

- Protect forests from clearing and degradation from logging, fire and unsustainable levels of non-timber resource extraction
- Enrichment planting in degraded and regenerating forests
- Maintain and enhance natural wetlands

Soil fertility and nutrient sequestration

- Increase soil organic matter by incorporating manure, compost, biosolids or incorporating crop residues to enhance carbon storage
- Apply organic composts, fertilizers and bioamendments

Water purification and treatment

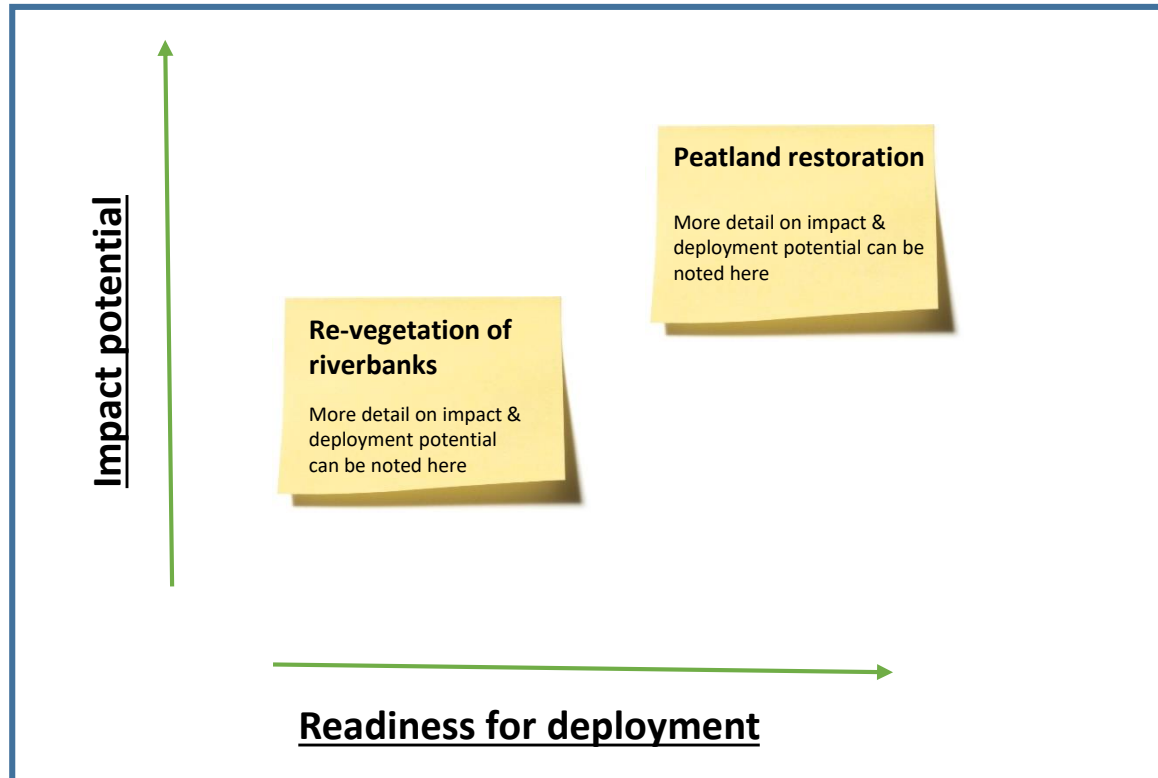
- Use engineered reedbeds/wetlands for tertiary treatment of effluent
- Target ponds/wetland creation to trap sediment/pollution runoff in farmed landscape
- Use bioremediation at locations of intense pollution, notably oil spills, through nutrient amendment (biostimulation, bioaugmentation, photoremediation and oxygen enhancement)

Erosion regulation

- Retain and restore forest cover on steep slopes
- Re-vegetation of riverbanks (such as through stock exclusion, and/or direct planting)
- Replace hard engineered river stabilization with softer alternatives (e.g. willow-based)

Can you think of other examples?.....

Exercise 1: NBS techniques - potential for impact and deployment.



Readiness for deployment:

↑ High =

‘Standard practice’ i.e. high Technology Readiness Level as determined by technique maturity, evidence base, existing level of usage, cost to implement etc.

Impact potential:

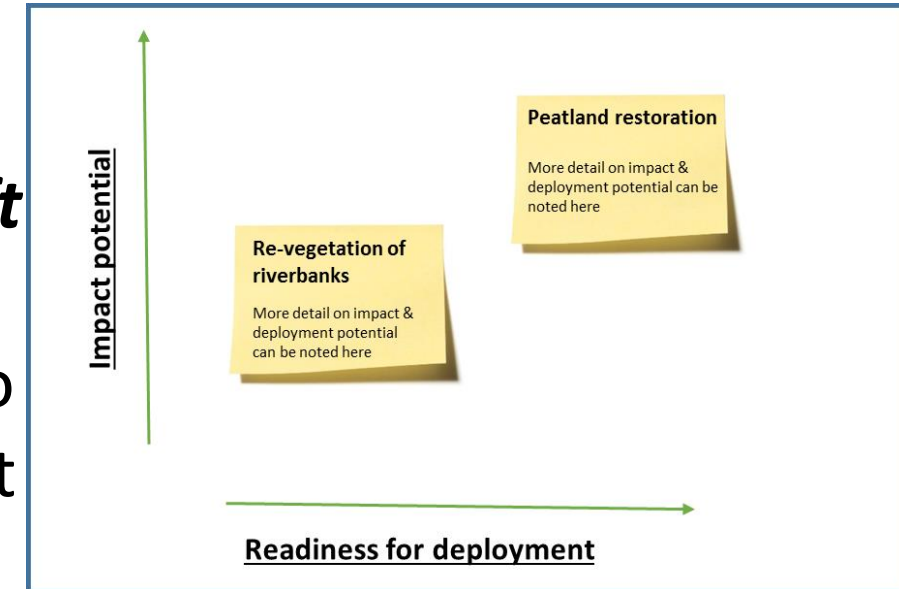
↑ High =

1. Potential for upscaling globally i.e. significant market potential’
2. Many co-benefits i.e. environmental goods and services the technique will have a positive impact on – including those with and without market value, e.g.
 - Space for housing and business – land improvement for re-use or re-sale
 - Water regulation to mitigate flood and drought risks
 - Climate regulation with carbon and nitrogen storage in biomass and soil
 - Soil fertility for biomass production; i.e. farming and forestry
 - Water quality improvement
 - Landscape cultural value
 - Improve terrestrial biodiversity
 - Etc.
3. Many beneficiaries

Exercise 2: Group discussion of opportunities and barriers

The group will identify :

- 1. Research** & Innovation opportunities to accelerate high potential impact, low readiness for deployment techniques (*top left of matrix*)
- 2. Demonstration** & innovation opportunities to accelerate high potential impact, near-market techniques (i.e. high deployment potential) (*top right of matrix*)
- 3. Policy barriers** to mainstreaming & how they can be overcome (with a focus on the EC)





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**Peatland restoration in
Scotland**



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